

THE IMPACT OF AN EXPERIENTIAL INTRODUCTION OF MINDFULNESS TO
REGISTERED DIETITIANS

A Senior Honors Thesis

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ABSTRACT

Mindfulness techniques have been shown to be successful mechanisms for use with eating therapies. Registered dietitians (RDs) are continually looking for innovative approaches with which to augment nutrition counseling for eating behaviors. The purpose of this study was to introduce mindfulness, both theoretically and experientially, to RD participants (n=138) through continuing education (CE) sessions at professional meetings. Participants attended one of five one-hour workshops which were given at professional meetings over a six-month period. Pre/post-presentation surveys were given the day of each presentation, and a three-month follow-up e-mail survey was used to assess changes in personal behaviors and professional mindfulness implementation. Before the presentation, 57% of RD's (n=79) had heard about mindful eating techniques for dietetics. Following the presentation, 83% (n=118) of RD's reported likeliness to investigate mindfulness for personal use and 73% (n=100) for professional use. Of the three month follow-up survey RD respondents (n=32), 25% (n=8) had sought information about mindfulness techniques, 59% (n=19) had used mindfulness personally and 31% (n=10) had used it professionally. Implementing mindfulness techniques into professional practice is correlated with personal application of mindfulness ($p=.013$, $r=.318$), yet it is more strongly correlated with seeking mindfulness information ($p=.009$, $r=.335$). These results highlight the recommendation that CE sessions introduce mindfulness to RDs with a personal application focus, in order to prepare them to use mindfulness techniques in their professional practices.

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CHAPTER 1

Problem Statement

The National Health Statistics Report indicates that there has been an increase from 2002 to 2007 in the use of Complementary and Alternative Medicine (CAM) among individuals in the United States (1). CAM modalities are therapies that are not regularly used in allopathic medicine, and may not have extensive research evidence supporting use and outcomes. According to the report, 38% of adults had indicated use of a CAM therapy within the past 12 months. Some of the CAM modalities with increased use by Americans are mind-body based therapies, which includes meditation, deep breathing, mindfulness and yoga (1). This increase in popularity and interest in mind-body based therapies makes it crucial that health professionals become educated about and exposed to the various CAM modalities available in order to effectively communicate with patients about these therapies (2).

Mindfulness Based Stress Reduction (MBSR), a mindfulness training program developed by Dr. Jon Kabat-Zinn in 1979, is a CAM therapy that combines mindfulness meditation and yoga to teach individuals how to be more in tune with their minds, bodies, and external environments (2,3). MBSR has been shown to produce behavioral, psychological and physiological benefits in participants both with and without health problems (3-7). Mindfulness, which is historically the basis of Buddhist meditation, can be described as “paying attention in a particular way”, which includes “an affectionate,

compassionate quality within the attending, a sense of openhearted, friendly presence and interest” (3,7). Mindfulness meditation teaches cognitive awareness of the relationships between the mind, body, and external environment in order to expose the power of internal resources to cope, grow, and heal from stressful experiences.

In recent years, mindfulness techniques have been employed as a means to raise one’s awareness of eating behavior and has been investigated in a variety of National Institute of Health (NIH) funded studies (8-11). The use of mindfulness with eating behaviors provides an opportunity for registered dietitians (RDs) to utilize these techniques in a clinical or professional setting.

To date, there are no studies published investigating the introduction of MBSR and/ or mindfulness to practicing registered dietitians (RDs) in order to promote utilization in practice. Given the success of MBSR and mindfulness techniques in clinical and non clinical populations, this study investigates whether introducing mindfulness research and providing mindful eating experiences through presentations at professional CE settings successfully prepares RDs to later investigate mindfulness as an effective tool for the populations which they serve.

Review of Literature

Introducing Health Practitioners to CAM

The increase in interest and use of CAM therapies amongst Americans makes it clear that there is a need for practicing health professionals to become introduced to these therapies. In a 2003 article, Kabat-Zinn emphasizes that mindfulness “cannot be taught to others in an authentic way without the instructor’s practicing it in his or her own life”

(2). Another article asserts the importance of practitioners practicing mindfulness in their daily lives (12). These views make it clear that in order for health practitioners to be able to train their clients on mindfulness techniques, they must first be introduced to mindfulness techniques and experience practicing the techniques themselves. Without an effective introduction of mindfulness techniques preceding clinical application, it is unlikely that health professionals would recommend such approaches to their clients.

Recent studies have investigated successful methods to introduce health practitioners to various CAM techniques in order to increase integration of those techniques into their practices (13-18). One method that has been discussed is incorporating CAM information into medical education curriculum, which will provide future physicians and health professionals with the tools and knowledge to appropriately educate their patients (13). While the incorporation of CAM into education is crucial to educating future practitioners, it does not provide a solution to the issue of educating currently practicing health professionals about CAM. There are several studies which focus on introducing currently practicing health practitioners to CAM techniques. These studies have illustrated that the combination of conceptual change and experiential teaching approaches have been the most effective. One randomized controlled study used an 8-hour intervention with a pre-post design at a large academic medical center to introduce various CAM techniques to physicians (14). Participants were first provided research background on techniques, and then were invited to experience the techniques themselves. The participants showed significant positive changes in perceptions about CAM and attitudes toward it when compared with the control group. The participant

physicians rated research evidence as the most important factor influencing their willingness to integrate CAM into their practices.

A second study utilized a week-long training program for health professionals (15). Study participants were given didactic and experiential training in multiple mind-body therapies. They were given questionnaires on previous training and use of the approaches both before and one year after the program. The results of this study indicate that there was a significant increase in both personal and professional use of the CAM modalities introduced.

Another study examined how an integrative cancer care training program for health professionals might alter participants' perception of their professional skills, use of mind-body modalities, and the acceptance of integrative cancer care at their institutions (16). The training program was a week long and included lectures that provided the participants with information about integration of conventional and complementary therapies for cancer care into individualized programs. The small group sessions introduced the participants to experiencing mind-body techniques. Surveys given at the training program as well as six months after the program were used to determine current personal and professional use of CAM modalities, as well as changes in their clinical practice and acceptance of the therapies by their institutions. The results of this study show that there was a significant increase in the use and recommendation of CAM modalities in their clinical practices (16).

An additional study introduced clinical psychologists in training to mindfulness through a series of 14 brief 10-minute sessions during lunch breaks (18). Results from

the study indicate that the brief exercises in mindfulness could be useful as an “experiential introduction to mindfulness for clinicians”.

Mindfulness techniques for eating behaviors

Traditional diet therapies (caloric restriction, fat restriction, medical intervention, etc) as treatments for weight management have been shown to be fairly ineffective in producing long-term weight loss (19). With the obesity epidemic continually increasing in severity, RDs need to explore other diet therapies to produce lasting weight loss and lasting behavior change in clients.

Mindfulness and mindful eating (also referred to as intuitive eating) have been explored as potential alternative or adjunctive therapies to traditional diet therapies (8-11). Mindful eating can be described as nonjudgmental awareness of both internal and external experiences and sensations associated with eating such as hunger and satiation cues, tastes, smells, textures, and more (10). Research into eating habits and factors that influence food consumption suggests that there is an over-reliance on external cues for meal cessation rather than internal cues (19-25). This lack of a focus on internal cues for hunger and satiation can lead to over eating and ultimately weight gain. Mindfulness and mindful eating techniques can provide individuals with the skills to be able to acknowledge when they are hungry and respond to their own body’s demands rather than to environmental factors. RDs need to become familiar with mindfulness and mindful eating techniques in order to be able to provide clients and patients with the necessary education and training to be able to utilize these beneficial techniques.

Stages of Change Model for Behavior Change

The Stages of Change (Transtheoretical) Model can be used to describe an individual's level of readiness to change a given behavior (26). This model can be used to assess and describe a RD's readiness to implement mindfulness techniques in a clinical or professional setting. There are five stages in this model (26):

- Precontemplation – “has no intention of taking action within the next six months”
- Contemplation – “intends to take action in the next six months”
- Preparation – “intends to take action within the next thirty days and has taken some behavioral steps in this direction”
- Action – “has changed behavior for less than six months”
- Maintenance – “has changed behavior for more than six months”

In order for RDs to be ready to implement mindfulness techniques into a clinical or professional setting, they would need to adopt mindfulness practices themselves. In order for this personal adoption of mindfulness to occur for the RDs, they would need to be in contemplation, preparation, or action stages of the Stages of Change Model.

Objectives/Purposes

1. To determine whether professional CE is an appropriate venue to introduce mindfulness approaches in order to encourage behavior change in practicing RDs.
2. To describe knowledge and use of CAM and mindfulness techniques by practicing RDs prior to an introduction to mindfulness.
3. To determine if previous knowledge and use of CAM and mindfulness affects use after a brief introduction to mindfulness.

The researchers of this study hypothesized that the introduction of mindfulness to RDs through conceptual theory, the research evidence, and a mindful eating experience would result in participants seeking more information about mindfulness and utilizing it for personal practice.

CHAPTER 2

Methodology

This study was drawn from a larger study examining an introduction of mindfulness to various health professionals. This study examined only RDs in order to determine the efficacy of professional meetings as a potential setting to present mindfulness education for this particular segment of health professionals.

International Review Board (IRB) approval for this study was obtained by Dr. Maryanna Klatt, the principal investigator for the study. Permission to present at five seminars for health professionals was obtained prior to beginning the study. Presentations were delivered to the attendees of the mindfulness sessions at the following approved professional meetings in 2009:

- Ohio Dietetics Association Annual Meeting
- Central Ohio Kidney Conference
- Lung Health and Tobacco Cessation Conference
- Martha Nelson Lewis Conference for Dietitians
- Diabetes Educators of Central Ohio

This study exposed RDs through professional CE meetings to a one-hour intervention consisting of an educational lecture and presentation about mindfulness theory and research, in addition to an experiential component involving mindful eating. The mindfulness intervention was developed based on the core concepts of mindfulness.

The first third of the presentation (about 20 minutes) provided attendees with background information on mindfulness, as well as information on the impact of mindlessness. The second third of the presentation (about 20 minutes) was devoted to explaining the scientific research on the efficacy of mindfulness and mindful eating. The last third of the presentation (about 20 minutes) was devoted to providing the attendees with experiences in mindfulness, specifically mindful eating. They were provided a handout with a “Mindful Eating diary”, and were asked to take a few minutes to fill out the diary. This diary asked them to recall their experiences eating in the past 24 hours, the external circumstances, people, and situations in which they ate, in order to guide them in an exploration of whether or not they had eaten mindfully. They were then asked to turn to the health care professional to their right and take a few minutes to generate ways that they might be able to use mindful eating practices as a way to help clients/patients. This component of the mindfulness experience expands upon appreciative inquiry, which holds that shared experiences and narratives can provide a collective experience and creates belief in the ability to transform the future (27). Registered dietitians are experts in nutrition and nutritional counseling, thus sharing ideas/experiences amongst themselves has the potential to move the group forward in generating ways in which mindful eating could be implemented, both personally and professionally.

Following this activity, attendees were then led through a brief (about 5 minutes) mindful eating experience by Dr. Klatt. The attendees were provided small boxes of raisins, and were invited to take three minutes to mindfully eat three raisins. They were asked to utilize all five senses while eating the raisins one at a time: sight, smell, taste,

touch, sound. The RDs were instructed to see the ridges, color, shape, variation of the raisins; smell the sweetness of the raisins; taste the difference in taste before and after biting the raisins; feel the textures of the raisins in the hand and mouth; hear the sounds in the mouth upon biting into the raisins. This mindful eating experience provided a practical experience, and a personal and potentially professional example of how mindfulness can be applied to eating.

Pre- and post-presentation surveys were developed, in addition to a three-month follow-up e-mail survey measuring the RDs' adoption of the core concepts taught at the session. Content validity of the surveys was enhanced by developing the surveys based on the educational intervention. Pre/post-presentation surveys were distributed on the day of each presentation and attendees were presented with the option to anonymously complete surveys and be included in the research study. Of all the attendees present at the presentations, 138 RDs opted to participate in the study by completing the pre/post presentation surveys. Of these 138 RD participants, a self-selected sub-set of 109 RDs elected to receive a follow-up e-mail survey concerning their implementation of mindfulness strategies three months after the presentation. Those who indicated agreement to receive a follow-up e-mail survey were guaranteed that they would only be contacted once, eliminating the option of contacting participants that did not return the follow-up surveys. Pre/post-presentation surveys were collected immediately following each presentation, and all data were kept confidentially in Atwell Hall at The Ohio State University.

Three months following each presentation, the attendees that agreed to be contacted via e-mail (n=109) were sent one e-mail with an attached brief three-month post-

presentation survey, inquiring about the presentation attendee's use of the information presented on mindfulness, either for their personal use or professional practice. Follow-up surveys were electronically completed and returned by e-mail from 32 RD respondents. As previously mentioned, the participants were guaranteed only one e-mail contact so further encouragement of participation was unable to occur. The follow-up survey assessed information seeking, personal use, and professional use of information presented.

Population and Sample

The population that was selected for this study consisted of RDs attending the previously mentioned professional meetings for health professionals in central Ohio in 2009. Prior permission to collect research data was obtained. A total of five professional meetings were chosen to provide the study sample so that an adequate amount of participants could be obtained. The meetings were not exclusively for RDs, but instead were for various health professionals. One professional meeting did not have any RD participants, resulting in no survey results from that meeting (Lung Health and Tobacco Cessation Conference). Table 1 describes the number of participants by professional meeting and survey. The participants of the study were those RDs that completed pre/post-presentation surveys and indicated agreement to participate in the research study. Mean number of years in practice of participants was 18.04, and the mean age of participants was 44.5 years.

Professional Meeting	Pre/Post Survey RDs (n)	Follow-Up Survey RDs (n)
Ohio Dietetic Association Annual Meeting	34	7
Central Ohio Kidney Conference	14	2
Lung Health and Tobacco Cessation Conference	0	0
Martha Nelson Conference for Dietitians	40	9
Diabetes Educators of Central Ohio	50	14

Table 1: RD Participation by Professional Meeting and Survey

Design

This research study had a single-group pretest posttest design. The investigators elected not to utilize a control group with this study, which was a limitation to the study design.

The mindfulness presentations used in this study were developed based on two principles: experiential learning and behavior change (26,28). RDs need to experience mindfulness techniques in order to be confident that the techniques may help their patients. During the presentation, participants experienced a brief mindful eating experience in which they mindfully ate three raisins in three minutes. The experiential learning component allowed for a personal mindful eating experience. The behavior change approach acknowledges that in order for RDs to be willing to use mindfulness techniques in a professional setting, they must first be at a stage of change in which they are ready to consider implementing or to implement mindfulness techniques. By providing the RDs with the conceptual theories of mindfulness in addition to an experiential component, they were prepared to advance to a higher stage of behavior change and move closer to implementation of mindfulness techniques in the professional setting.

Data and Instrumentation

The instruments used to collect data for this survey included three different surveys: a pre-presentation survey (Figure 1), a post-presentation survey (Figure 2), and a three-month follow-up e-mail survey (Figure 3). Please refer to the appendix for examples of the instruments.

The pre-presentation survey (Figure 1) was used to assess demographic and professional information of the participants, including health profession, years in practice, gender, age, highest educational degree, and proportion of their day spent in direct patient contact. The collection of this information was primarily for the larger study being completed by the primary researcher, Dr. Maryanna Klatt. The question regarding health profession allowed the RDs to be identified and evaluated separate from the other health professionals.

The pre-presentation survey also collected information about the participants' knowledge and use of CAM and mindfulness prior to the presentation, allowing there to be a baseline established for prior knowledge and use. Responses included a Likert scale to assess the levels of knowledge and use of CAM and mindfulness (never, sometimes, often, always). The questions on this survey were:

- “Have you ever had a client/patient ask you for information or advice about CAM?”
- “Have you ever felt a need for instruction within professional continuing education on CAM?”
- “Have you ever employed any CAM approaches within your clinical practice?”
- “Have you ever heard about Mindfulness Based Stress Reduction as it relates to your clinical practice?”
- “Have you ever heard about Mindful Eating as it relates to your profession?”

- “Have you ever employed any CAM approaches to Health and Wellness yourself?”

Affirmative responses to these questions (sometimes, often, always) were collapsed to provide a more accurate representation of participants’ overall prior experiences with CAM/ mindfulness techniques.

The post-presentation survey (Figure 2) was used to assess participants’ likeliness to investigate mindfulness and CAM for personal and professional use after being introduced to it during the presentation. They were answered using a Likert scale (1=not at all likely; 2=not likely; 3=maybe; 4=likely; 5=very likely). The questions on this survey were:

- “How likely is it you might investigate mindfulness technique for your professional use in your clinical practice?”
- “How likely is it you might investigate mindfulness techniques for your personal use?”
- “How likely is it you might investigate other CAM approaches for your professional use with your client/patients?”
- “How likely is it you might investigate other CAM approaches for your personal use?”

Affirmative responses to these questions (likely, very likely) were collapsed to provide a more accurate representation of overall likeliness to investigate mindfulness techniques.

This survey also included two qualitative data collection sections. In the first section, the participants brainstormed with the person next to them about ways they might be able to use mindfulness techniques in their clinical/professional practices. The second qualitative data collection section asked participants to indicate an area of their life (a meal/activity) with which they could best choose to be more mindful.

The three-month follow-up e-mail survey (Figure 3) was used to assess the changes in behaviors of the health professionals regarding mindfulness and CAM. Questions on this survey assessed information seeking, personal use, and professional use of mindfulness and CAM. The response options were: no, yes, I am considering it, I intended to. There was also a qualitative question asking the participant to detail how he/she implemented mindfulness in a clinical practice if it were indicated that he/she had done so. Questions on this survey were: “In the past three months:”

- “Have you sought information about Complementary and Alternative Medicine (CAM) approaches to Health and Wellness? (CAM includes Indian and Chinese Traditional Medicine, special diets, supplements, massage, yoga, meditation, energy medicine, etc)”
- “Have you sought information specifically about mindfulness techniques?”
- “Have you sought but not yet implemented anything using mindfulness techniques?”
- “Have you purchased or borrowed a book specifically about mindfulness techniques?”
- “Have you implemented mindfulness practices into your own life?”
- “Have you experimented with mindful eating?”
- “Have you implemented mindfulness techniques into your clinical practice in any way? If so, please detail.”

All survey data were collated via teleform, which electronically tabulated the data into a database, ensuring less data entry error. The data was then analyzed using PASW Statistics software. Methods of data analysis through PASW included both Spearman and Pearson correlations, as well as frequency analyses. In order for responses from the follow-up survey to be accurately analyzed using Spearman correlations, they needed to be re-ordered from “no (1), yes (4), I am considering it (3), I intended to (2)” to an ordinal rank of “no (1), I intended to (2), I am considering it (3), yes (4)”.

CHAPTER 3

Results/Discussion

As it tends not to be taught in educational programs for dietetics, practicing RDs need effective ways to be introduced to CAM modalities that are of interest to the populations which they serve. The results of this study indicate that there is a need felt amongst RDs for instruction on CAM within professional CE (Table 2), suggesting that it was a well-received setting to present information on mindfulness.

Prior to the mindfulness presentations, 57.6% of RD's (n=79) reported that they had heard about mindful eating techniques for dietetics; 53% (n=71) of RDs had used CAM approaches in a clinical practice; and 69.4% (n=93) of RDs had used CAM for personal use (Table 2). Following the presentation, 84.4% (n=118) of RD's reported likeliness ("likely" and "very likely" combined) to investigate mindfulness for personal use and 75.8% (n=100) for professional use (see Table 3).

Question	Response	N	%
Have you ever had a client/patient ask you for information or advice about CAM?	Never	20	14.7%
	Sometimes	86	63.2%
	Often	28	20.6%
	Always	2	1.5%
Total n=136			
Have you ever felt a need for instruction within professional continuing education on CAM?	Never	11	8.1%
	Sometimes	52	38.2%
	Often	61	44.9%
	Always	12	8.8%
Total n=136			
Have you ever employed any CAM approaches within your clinical practice?	Never	63	47.0%
	Sometimes	54	40.3%
	Often	13	9.7%
	Always	4	3%
Total n=134			
Have you ever heard about Mindfulness Based Stress Reduction as it relates to your clinical practice?	Never	81	59.1%
	Sometimes	33	24.1%
	Often	21	15.3%
	Always	2	1.5%
Total n=137			
Have you ever heard about mindful eating techniques as it relates to your clinical practice?	Never	58	42.3%
	Sometimes	51	37.2%
	Often	20	14.6%
	Always	8	5.8%
Total n=137			
Have you ever employed any CAM approaches to Health and Wellness yourself?	Never	41	30.6%
	Sometimes	62	46.3%
	Often	24	17.9%
	Always	7	5.2%
Total n=134			

Table 2: Pre-Presentation Survey RD Response Frequency Analysis

Question	Response	N	%
How likely is it you might investigate mindfulness techniques for your professional use in your clinical practice?	Not at all likely	2	1.5%
	Not likely	3	2.3%
	Maybe	27	20.5%
	Likely	65	49.2%
	Very likely	35	26.5%
Total n=132			
How likely is it you might investigate mindfulness techniques for your personal use?	Not at all likely	0	0%
	Not likely	1	.7%
	Maybe	20	14.8%
	Likely	57	42.2%
	Very likely	57	42.2%
Total n=135			
How likely is it you might investigate other CAM approaches for your professional use with your clients/patients?	Not at all likely	2	1.5%
	Not likely	5	3.8%
	Maybe	43	32.6%
	Likely	56	42.4%
	Very likely	26	19.7%
Total n=132			
How likely is it you might investigate other CAM approaches for your personal use?	Not at all likely	0	0%
	Not likely	9	6.7%
	Maybe	38	28.1%
	Likely	48	35.6%
	Very likely	40	29.6%
Total n=135			

Table 3: Post-Presentation RD Response Frequency Analysis

Likelihood to investigate mindfulness for professional practice was significantly correlated with feeling a need for instruction within CE on CAM ($r=.395$, $p<0.01$), having ever employed CAM in a clinical practice ($r=.344$, $p<0.01$), having ever heard about MBSR as it relates to clinical practice ($r=.407$, $p<0.01$), having ever heard about mindful eating techniques for clinical practice ($r=.394$, $p<0.01$), and having ever employed CAM approaches to health personally ($r=.333$, $p<0.01$) (Table 4). These results suggest that having prior knowledge or experience related to CAM or mindfulness was a significant factor in the participants' likelihood to further investigate mindfulness.

	Post-test Questions			
	How likely is it you might investigate mindfulness techniques for your professional use in your clinical practice?	How likely is it you might investigate mindfulness techniques for your personal use?	How likely is it you might investigate other CAM approaches for your professional use with your client/patients?	How likely is it you might investigate other CAM approaches for your personal use?
Pre-test Questions				
Have you ever had a client/patient ask you for information or advice about CAM?	.097	.025	.154	.139
Have you ever felt a need for instruction within professional CE on CAM?	.395**	.299**	.301**	.370**
Have you ever employed any CAM approaches within your clinical practice?	.344**	.296**	.402**	.340**
Have you ever heard about Mindfulness Based Stress Reduction as it relates to your clinical practice?	.407**	.252**	.463**	.301**
Have you ever heard about Mindful Eating techniques as it relates to your clinical practice?	.394**	.203*	.335**	.152
Have you ever employed any CAM approaches to Health and Wellness yourself?	.333**	.359**	.384**	.385**
N=138, *P<0.05, **P<0.01				

Table 4: Correlation analysis of pretest to posttest survey RD responses

The response rate of the three month follow-up survey RD respondents was 29% (n=32). Of the respondents, 25% (n=8) had sought information about mindfulness techniques, 59% (n=19) had used mindfulness personally and 31% (n=10) had used it

professionally (Table 5). Seeking information about mindfulness is significantly correlated with purchasing or borrowing a book about mindfulness ($r=.525$, $p<0.01$), personal application ($r=.460$, $p<0.01$), and professional implementation of mindfulness ($r=.335$, $p<0.01$), as shown in Table 6 below.

Question	Response	N	%
Have you sought information about CAM approaches to Health and Wellness?	No	11	34.4%
	Intended to	2	6.3%
	Considering it	2	6.3%
	Yes	17	53.1%
Total n=32			
Have you sought information specifically about mindfulness techniques?	No	21	65.6%
	Intended to	1	3.1%
	Considering it	2	6.3%
	Yes	8	25.0%
Total n=32			
Have you sought but not yet implemented anything using mindfulness techniques?	No	23	79.3%
	Intended to	0	.0%
	Considering it	0	.0%
	Yes	6	20.7%
Total n=29			
Have you purchased or borrowed a book specifically about mindfulness techniques?	No	28	87.5%
	Intended to	2	6.3%
	Considering it	1	3.1%
	Yes	1	3.1%
Total n=32			
Have you implemented mindfulness practices into your own life?	No	9	28.1%
	Intended to	2	6.3%
	Considering it	2	6.3%
	Yes	19	59.4%
Total n=32			
Have you experimented with mindful eating?	No	11	34.4%
	Intended to	2	6.3%
	Considering it	0	.0%
	Yes	19	59.4%
Total n=32			
Have you implemented mindfulness techniques into your clinical practice in any way?	No	19	59.4%
	Intended to	1	3.1%
	Considering it	2	6.3%
	Yes	10	31.3%
Total n=32			

Table 5: Three-Month Follow-Up E-Mail Survey RD Response Frequency Analysis

Follow-Up Survey Questions	Have you sought info about CAM approaches to Health and Wellness?	Have you sought information specifically about mindfulness techniques?	Have you sought but not yet implemented anything using mindfulness techniques?	Have you purchased or borrowed a book specifically about mindfulness techniques?	Have you implemented mindfulness practices into your own life?	Have you experimented with mindful eating?
Have you sought information specifically about mindfulness techniques?	.244					
Have you sought but not yet implemented anything using mindfulness techniques?	.008	.297*				
Have you purchased or borrowed a book specifically about mindfulness techniques?	.184	.525**	.051			
Have you implemented mindfulness practices into your own life?	.172	.460**	.379**	.321*		
Have you experimented with mindful eating?	.254*	.305*	.295*	.207	.439**	
Have you implemented mindfulness techniques into your clinical practice in any way?	.012	.335**	.239	.217	.318*	.326*
N=32, *P<0.05, **P<0.01						

Table 6: Correlation analysis of three-month follow-up survey RD responses

The results can best be explained through the Stages of Change Model (26). The RDs that indicated on the three month follow-up survey they had not sought information about mindfulness techniques were in the pre-contemplation stage of change, and they likely have no intention to take action regarding mindfulness any time soon. These RDs need more information about mindfulness shared with them before they will be ready to seek out information independently. The RDs that sought information, but had not implemented mindfulness into personal or professional practice were in contemplation or preparation stages of change, indicating that they were preparing themselves to implement mindfulness in the future. The RDs that had implemented mindfulness personally or professionally were in action or maintenance stages of change, and had either begun to implement it because of the presentation or had continued implementing it if they had previously done so.

These results highlight the recommendation that CE sessions introduce mindfulness to RDs with a personal application focus, in order to prepare them to use mindfulness techniques in their professional practices. RDs that practice mindfulness techniques themselves will be more comfortable teaching techniques to clients or patients.

Future Implications/Conclusions

The use of a single-group pretest posttest study design allowed for potential threats to validity of the study. While it was determined that a control group would have been impractical to use with this study, a control group would have allowed the researchers to determine whether the experiential learning component of the study made a difference with likeliness to investigate CAM or mindfulness and the implementation of

mindfulness three months following the interventions. Perhaps the experiential component is critical for CE sessions on mindfulness to affect change, but without a control group that only receives didactic instruction on mindfulness, this conclusion cannot be reached. This indicates an opportunity for future research into mindfulness introductions to practicing RDs.

To date, there are no published studies introducing mindfulness techniques to registered dietitians through a professional continuing education format utilizing didactic background and research information, in addition to experiential immersion. This study provides promising evidence concerning the education of practicing RDs about CAM techniques through the format of professional continuing education. The practicing RD is a valuable target for the teaching of mindfulness techniques as the RD has an opportunity to help provide individuals with dietary behaviors and techniques to lead healthy lives. Practicing healthcare professionals need to be introduced to cutting edge research that could enhance their practice- especially when we have a national obesity problem that has such a huge impact on rising health care costs. Interventions such as mindful eating may appear at first glance to be beyond the comfort zone of RDs who graduated prior to research evidence verifying the benefits of CAM approaches. Professional CE presentations may be a powerful format to provide both the current research background to practicing healthcare practitioners, while allowing for the experiential component of the CAM approach.

REFERENCES

1. Barnes, P. M., Bloom, B., & Nahin, R. L. (2008) Complementary and alternative medicine use among adults and children: United States, 2007. *Natl Health Stat Report*, 12, 1-24.
2. Kabat-Zinn, J. (2003) Mindfulness-Based Interventions in Context: Past, Present, and Future. *Clinical Psychology: Science and Practice*, 10, 144-156. doi: 10.1093/clipsy/bpg016
3. Grossman, P., Nieman, L., Schmidt, S., & Walach, H. (2004) Mindfulness-based stress reduction and health benefits: A Meta-Analysis. *Journal of Psychosomatic Research*, 57, 35-43. doi:10.1016/S0022-3999(03)00573-7
4. Shapiro, S. L., Oman, D., Thoresen, C. E., Plante, T. G., & Flinders, T. (2008) Cultivating Mindfulness: Effects on Well-Being. *Journal of Clinical Psychology*, 64(7), 840-862. doi: 10.1002/jclp.20491
5. Reibel, D. K., Greeson, J. M., Brainard, G. C., & Rosenzweig, S. (2001) Mindfulness-based stress reduction and health-related quality of life in a heterogeneous patient population. *General Hospital Psychiatry*, 23, 183-192.
6. Davidson, R. J., Kabat-Zinn, J., Schumacher, J., Rosenkranz, M., Muller, D., Santorelli, S. F., Urbanowski, F., Harrington, A., Bonus, K., & Sheridan, J. F. (2003) Alterations in Brain and Immune Function Produced by Mindfulness Meditation. *Psychosomatic Medicine*, 65, 564-570. doi: 10.1097/01.PSY.0000077505.67574.E3
7. Baer, R. A. (2003) Mindfulness Training as a Clinical Intervention: A Conceptual and Empirical Review. *Clinical Psychology: Science and Practice*, 10, 125-143. doi: 10.1093/clipsy/bpg015

8. Hammond, M. (2007, Fall) Ways Dietitians are Incorporating Mindfulness and Mindful Eating into Nutrition Counseling. *The Digest: A Dietetic Practice Group of the American Dietetic Association*, 1-9.
9. Kristeller JL, Hallett CB. An exploratory study of a meditation-based intervention for binge eating disorder. *J Health Psychol* 1999; 4: 357-363.
10. Framson, C., Kristal, A. R., Schenk, J. M., Littman, A. J., Zeliadt, S., & Benitez, D. (2009) Development and Validation of the Mindful Eating Questionnaire. *Journal of the American Dietetic Association*, 109, 1439-1444. doi: 10.1016/j.jada.2009.05.006
11. Manzoni, G. M., Pagnini, F., Gorini, A., Preziosa, A., Castelnuovo, G., Molinari, E., & Riva, G. (2009) Can Relaxation Training Reduce Emotional Eating in Women with Obesity? An Exploratory Study with 3 Months of Follow-Up. *Journal of the American Dietetic Association*, 109, 1427-1432. doi: 10.1016/j.jada.2009.05.004
12. Dimidjian, S. & Linehan, M. M. (2003) Defining an Agenda for Future Research on the Clinical Application of Mindfulness Practice. *Clinical Psychology: Science and Practice*, 10, 166-171. doi: 10.1093/clipsy/bpg019
13. Konefal, J. (2002) The Challenge of Educating Physicians about Complementary and Alternative Medicine. *Academic Medicine*, 77(9), 847-850.
14. Hewson, M. G., Copeland, H. L., Mascha, E., Arrigain, S., Topol, E., & Fox, J. E. B. (2006) Integrative medicine: implementation and evaluation of a professional development program using experiential learning and conceptual change teaching approaches. *Patient Education and Counseling*, 62, 5-12. doi:10.1016/j.pec.2006.03.005
15. Staples, J. K. & Gordon, J. S. (2004) Effectiveness of a Mind-Body Skills Training Program For Health Professionals. *Alternative Therapies in Health and Medicine*, 11(4), 36-41.
16. Staples, J. K., Wilson, A. T., Pierce, B., & Gordon, J. S. (2007) Effectiveness of CancerGuides®: A Study of an Integrative Cancer Care Training Program for Health Professionals. *Integrative Cancer Therapies*, 6, 14. doi: 10.1177/1534735406298145

17. Ben-Arye, E., Frenkel, M., & Hermoni, D. (2006) An Approach to Teaching Primary Care Physicians How to Integrate Complementary Medicine into Their Daily Practices: A Pilot Study. *Journal of Alternative and Complementary Medicine*, 12(1), 79-83.
18. Moore, P. (2008) Introducing Mindfulness to Clinical Psychologists in Training: An Experiential Course of Brief Exercises. *Journal of Clinical Psychology in Medical Settings*, 15, 331-337. doi:10.1007/s10880-008-9134-7
19. Gast, J. & Hawks, S. R. (1998) Weight Loss Education: The Challenge of a New Paradigm. *Health Behavior and Education*, 25, 464-473.
20. Wansink, B., Payne, C. R., & Chandon, P. (2007) Internal and External Cues of Meal Cessation: The French Paradox Redux? *Obesity*, 15(12), 2920-2924.
21. Vartanian, L. R., Herman, C. P., Wansink, B. (2008) Are We Aware of the External Factors That Influence Our Food Intake? *Health Psychology*, 27(5), 533-538. doi: 10.1037/0278-6133.27.5.533
22. Wansink, B. (2004) Environmental Factors That Increase Food Intake and Consumption Volume of Unknowing Consumers. *Annual Review of Nutrition*, 24, 455-479. doi: 10.1146/annurev.nutr.24.012003.132140
23. Wansink, B. & Sobal, J. (2007) Mindless Eating: The 200 Daily Food Decisions We Overlook. *Environment and Behavior*, 39(1), 106-123.
24. Tylka, T. L. (2006) Development and Psychometric Evaluation of a Measure of Intuitive Eating. *Journal of Counseling Psychology*, 53, 2, 226-246. doi: 10.1037/0022-0167.53.2.226
25. Bacon, L., Stern, J. S., Van Loan, M. D. & Keim, N. L. (2005) Size Acceptance and Intuitive Eating Improve Health for Obese, Female Chronic Dieters. *Journal of the American Dietetic Association*, 105, 929-936. doi: 10.1016/j.jada.2005.03.011
26. Rimer, B. K. & Glanz, K. Theory at a Glance: A Guide For Health Promotion Practice (Second Edition). *National Cancer Institute, National Institutes of Health, U.S. Department of Health and Human Services*.

27. Egan, T. & Lancaster, C. (2005) Comparing appreciative inquiry to action research: OD practitioner perspectives. *Organization Development Journal*, 23, 2, 29-50.
28. Kolb, D. *Experiential learning: experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice Hall; 1984.

APPENDIX A: STUDY INSTRUMENTS

PRE-PRESENTATION SURVEY

Principal Investigator: Maryanna Klatt, PhD
Department of Family Medicine

Shade circles like this: ☐ Not like this: ☐

Please mark one response below.

☐ **I WANT** my answers to these survey questions to be used in an Ohio State University research study. The surveys should take about 5 minutes to complete. I will leave any questions blank that I choose not to answer. My answers will be kept confidential and any identifiers will be removed from the data. Completing this survey is entirely optional.

☐ **I DO NOT** want any of my answers to these survey questions to be used in a research study. Completing this survey is entirely optional.

Date: / /

Type of Professional Meeting you are attending:

My health profession:

Certified Diabetes Educator	<input type="radio"/> No <input type="radio"/> Yes	Smoking Cessation Specialist	<input type="radio"/> No <input type="radio"/> Yes
Dietitian	<input type="radio"/> No <input type="radio"/> Yes	Social Worker	<input type="radio"/> No <input type="radio"/> Yes
Nurse	<input type="radio"/> No <input type="radio"/> Yes	Physician (MD or DO)	<input type="radio"/> No <input type="radio"/> Yes
Nurse Practitioner	<input type="radio"/> No <input type="radio"/> Yes	Psychologist	<input type="radio"/> No <input type="radio"/> Yes
Respiratory Therapist	<input type="radio"/> No <input type="radio"/> Yes	Other <input type="text"/>	<input type="radio"/> No <input type="radio"/> Yes

Years in practice: Gender: ☐ Male ☐ Female Age:


My highest educational degree:

☐ Associate ☐ Bachelors ☐ Masters ☐ PhD ☐ Clinical Doctorate (MD, DO, DPT) ☐ Other

What proportion of your day is spent in direct patient contact? ☐ None ☐ Little ☐ Some ☐ Most ☐ All

For each item below, please mark the one response that most represents your opinion about Complementary and Alternative Medicine (CAM) approaches to Health and Wellness. (CAM includes special diets, supplements, massage, yoga, meditation, energy medicine, Indian and Chinese Traditional Medicine, etc.)

	Never	Sometimes	Often	Always
Have you ever had a client/patient ask you for information or advice about CAM?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have you ever felt a need for instruction within professional continuing education on CAM?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have you ever employed any CAM approaches within your clinical practice?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have you ever heard about Mindfulness Based Stress Reduction as it relates to your clinical practice?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have you ever heard about Mindful Eating techniques as it relates to your clinical practice?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have you ever employed any CAM approaches to Health and Wellness yourself?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Medical Center

Please turn to the other side to continue the survey.

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Figure 1: Pre-Presentation Survey

POST-PRESENTATION SURVEY

Principal Investigator: Maryanna Klatt, PhD
Department of Family Medicine

Shade circles like this: ● Not like this: ☒ ☑

For each item below, please mark the one response that most represents your opinion.

After hearing the research background and experiential demonstration of Mindfulness:

	<i>Not At All Likely</i>	<i>Not Likely</i>	<i>Maybe</i>	<i>Likely</i>	<i>Very Likely</i>
How likely is it you might investigate mindfulness techniques for your professional use in your clinical practice?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely is it you might investigate mindfulness techniques for your personal use?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely is it you might investigate other CAM approaches for your professional use with your client/patients?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How likely is it you might investigate other CAM approaches for your personal use?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please describe your thoughts on how Mindfulness techniques (including Mindful Eating) could be used in your own clinical practice, or the clinical practice of others in your health profession.

If there were one meal, or one activity that you would choose to mindfully be aware of in your daily life, what would it be?

If you are willing to receive ONE 5-question email survey 3 months from now, please provide your email address: @

This information will be kept confidential and used one time only to send you the 3 month post-presentation 5-question survey about your choice to use and implement this information.

You have completed the survey. Thank you very much for your participation.

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Figure 2: Post-Presentation Survey

	No	Yes	I am considering it	I intended to
In the past 3 months: Have you sought information about Complementary and Alternative Medicine (CAM) approaches to Health and Wellness? (CAM includes Indian and Chinese Traditional Medicine, special diets, supplements, massage, yoga, meditation, energy medicine, etc)				
In the past 3 months: Have you sought information specifically about mindfulness techniques?				
In the past 3 months: Have you sought but not yet implemented anything using mindfulness techniques?				
In the past 3 months: Have you purchased or borrowed a book specifically about mindfulness techniques?				
In the past 3 months: Have you implemented mindfulness practices into your own life?				
In the past 3 months: Have you experimented with mindful eating?				
In the past 3 months: Have you implemented mindfulness techniques into your clinical practice in any way? If so, please detail:				

Figure 3: Three-Month Follow-Up Survey